

```
from sklearn.svm import SVC
import numpy as np
import matplotlib.pyplot as plt
from sklearn import svm, datasets
```

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
```

```
from matplotlib import pyplot as plt
%matplotlib inline
import io
import sys
import pandas as pd
from google.colab import files
```

```
uploaded = files.upload()
bankdata= pd.read_csv(io.BytesIO(uploaded['bill_authentication.csv']))
```

📁 Choose Files bill_authentication.csv

- **bill_authentication.csv**(application/vnd.ms-excel) - 46442 bytes, last modified: 5/10/2021 - 100% done
Saving bill_authentication.csv to bill_authentication (1).csv

```
bankdata.shape
```

```
(1372, 5)
```

```
bankdata.head()
```

	Variance	Skewness	Curtosis	Entropy	Class
0	3.62160	8.6661	-2.8073	-0.44699	0
1	4.54590	8.1674	-2.4586	-1.46210	0

▼ Data Preprocessing

Data preprocessing involves (1) Dividing the data into attributes and labels and (2) dividing the data into training and testing sets.

```
X = bankdata.drop('Class', axis=1)
y = bankdata['Class']
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.20)
```

▼ Training data

```
from sklearn.svm import SVC
svclassifier = SVC(kernel='linear')
svclassifier.fit(X_train, y_train)

SVC(C=1.0, break_ties=False, cache_size=200, class_weight=None, coef0=0.0,
    decision_function_shape='ovr', degree=3, gamma='scale', kernel='linear',
    max_iter=-1, probability=False, random_state=None, shrinking=True,
    tol=0.001, verbose=False)
```

▼ Data prediction

```
y_pred = svclassifier.predict(X_test)
```

▼ Evaluating the Algorithm

```
from sklearn.metrics import classification_report, confusion_matrix
print(confusion_matrix(y_test,y_pred))
print(classification_report(y_test,y_pred))
```

```
[[145  2]
 [ 2 126]]
```

	precision	recall	f1-score	support
0	0.99	0.99	0.99	147
1	0.98	0.98	0.98	128
accuracy			0.99	275
macro avg	0.99	0.99	0.99	275
weighted avg	0.99	0.99	0.99	275

Pre	0	1
Actual 0	145	2
Actual 1	2	126

1379

$T_0 = 15$
 $T_1 = 271$

Double-click (or enter) to edit

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